ENB

UNITED STATES

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LIBRARY
STATE PLANT BOARD

14 Aphids vs. arsenicals on cotton

BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

15 Pink bollworm in Fla.

NEWS LETTER

16 Sweetpotato weevil flies
Croeca virg. vs. imported cabbage worm
17 S. as repellent vs. wireworm egg-laying.
18 Screwworm

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UNITED STATES DEPARTMENT OF AGRICULTURE

BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

NEWS LETTER

FOR JULY 1935

Vol. II, No. 9 (Not for publication) September 1, 1935

FRUIT INSECT INVESTIGATIONS

Notes on dried-fruit insects.--The first results in a proposed series of tests designed to measure the crevices through which insects can gain access to packages of dried fruits are reported by Perez Simmons, of the Fresno, Calif., laboratory. Micro slides with cylindrical wells were arranged in pairs with the depressions facing each other. The wells were baited with insect-free pieces of raisin and walnut. The slides, separated by one, two, or three thicknesses of metal shim 0.04 mm thick, were held together with clamps. By this arrangement accurately measured crevices (0.04, 0.08, and 0.12 mm) gave entrance to the baits. The inner surfaces of the slides were of dull finish to permit newly hatched larvae to crawl upon them. After exposure in pure cultures of the Indian-meal moth and the saw-toothed grain beetle, it was found that the former had infested bait through an opening 0.12 mm wide, but that the saw-toothed grain beetle had failed to gain entrance. Both species infested other baits in slides separated by glass cover slips 0.21 mm thick.

New method of applying tanglefoot in laboratory experiments.--In connection with their insecticide experiments for control of the codling moth, L. F. Steiner and R. F. Sazama, of the Vincennes, Ind., laboratory, have reported a recent improvement in procedure. To prevent entrance of larvae at the calyx and access to the apple from below, it has been customary to apply tanglefoot around the calyx and to the pin on which the apple is placed with a pointed stick. This is a time-consuming task and in order to speed up the operation a new method of application was developed. A supply of new lead tubes similar to those used for applying glue or cement was procured and the tubes were filled in the laboratory with a hot mixture of 1 part liquid tanglefoot and 2 parts tree tanglefoot. They were equipped with pointed nozzles through which the desired amount of tanglefoot could be squeezed as it was applied. Approximately two tubes are required per 1,000 apples. The time saved in one experiment is enough to pay for a year's supply of tubes.

Capture of fruit-moth parasite in bait traps.--Wm. P. Yetter, Jr., Moorestown, N. J., reports that six males of *Dioctes molestae* Uch., a Japanese parasite of the oriental fruit moth recently introduced into the United

States, were caught in a bait trap in the Moorestown area. The parasites of the fruit moth are rarely captured in bait traps. This is the first time, according to H. W. Allen, that this parasite species has been recovered in the United States from overwintering material.

MEXICAN FRUIT FLY

Trap catches in July.--For the second consecutive month no *Anastrepha ludens* Loew was trapped in the lower Rio Grande Valley area, although 1 was taken in Laredo and 5 were trapped in two Mexican border towns. Other *Anastrepha* species were trapped on the Texas side of the Rio Grande, as follows: *A. serpentina* Wied., 18; *A. pallens* Coq., 143; and *A. fraterculus* of authors, 9. A total of 3,215 larvae of *A. ludens* and other *Anastrepha* species were found infesting fruit collected from the markets in Matamoros and Reynosa, Mexico.

DATE SCALE CONTROL

Date scale inspection.--The inspection of the Coachella, Calif., district was completed in July and over 90 percent of the plantings were dropped from the inspection lists. Inspection was begun in the Indio district. In the Imperial Valley systematic inspection was continued. The entire infested area has been covered since the first of the calendar year. The limits of the infested area are being narrowed and many plantings are being dropped from the inspection lists.

CEREAL AND FORAGE INSECT INVESTIGATIONS

Heat kills pea aphid in Oregon.--L. P. Rockwood, of the Forest Grove, Oreg., laboratory, reports that a field of Austrian winter field peas that had been seeded late in March or early in April, much too late for Willamette Valley conditions, was examined on July 11 and again on July 15. In the intervening days, maximum temperatures were recorded at Forest Grove, 10 miles west of the field, as follows: July 12, 101° F.; July 13, 106°; July 14, 108°. On July 11 the peas were very heavily infested by *Illinoia pisi* Kalt. They were estimated to average from 8,000 to 10,000 per 100 sweeps of the net, notwithstanding the thin stand and short growth, the peas being from 12 to 18 inches high. Individual tips were crowded with aphids from 3 to 4 inches down from the tips. On July 15, 350 sweeps yielded not a single individual of *I. pisi*. Examination of the ground under the plants disclosed piles of dead dried-up aphids. Syrphid larvae, mostly *Lasiopthicus pyrastri* L., had also been killed. Some living coccinellid larvae were swept but they were thin from starvation. The thin stand and scant foliage of the peas and the thin stand of the companion crop, oats, afforded practically no shade from the hot sun. Not a specimen of *I. pisi* could be found in this field on July 30, when a few plants showed a little new growth, in spite of the great deficiency in soil moisture. An alfalfa field just coming into bloom was swept on the same dates, yielding an average of 100 *I. pisi* per 100 sweeps on July 11 and 30 per 100 sweeps on July 15. Here there was much shade to protect the aphids from the direct rays of the sun and heat killing was of little importance, even if it is assumed that the total reduction in aphid population between the two dates was entirely due to heat.

Collection of Phyllophaga beetles and rearing of grubs.--T. R. Chamberlin and Lee Seaton, of the Madison, Wis., laboratory, report as follows: "Early in July field collections of beetles were made at night in various localities in Wisconsin. Fair catches were made up to July 10 but by the 17th only scattered beetles could be taken. The beetles taken were confined over soil in 1-gallon tin cans, the eggs thus obtained were incubated, and the larvae were stocked in cages of various kinds. A summary of this work shows that to the end of July a total of 7,143 eggs were obtained. Most of the eggs were set to incubate, but a few were preserved. From those set to incubate a total of 2,471 larvae hatched. With the exception of a few that were preserved, these larvae were stocked in cages. Other cages were stocked with eggs only, so that the larvae hatching therefrom would not be disturbed at the time of hatching. The rearing cages at the end of July totaled approximately 50 1-gallon tins, 20 ointment tins, 6 greenhouse flats, and 5 glazed tiles 18 by 30 inches inside measurement. The latter were buried out of doors and filled with grub-free sifted soil. Recent observations have shown a heavy mortality among the larvae, especially during the first few days after setting in the soil. Survival of larvae set in this manner has been best in ointment tins, probably because the proper amount of moisture is more easily maintained in them than in the other cages and because the larvae are better able to keep themselves well in the soil when it is loosely in contact with the lid. Survival appears best where eggs, rather than larvae, are set and where wheat is planted at the time of setting so that when the larvae hatch the soil contains food and is properly broken up; therefore the larvae do not tend to come to the surface and die there."

Bees used for tripping alfalfa in breeding aphid-resistant plants.--R. A. Blanchard, of the Sacramento, Calif., laboratory, reports that on July 16 a small colony of bees, containing four frames and a queen, was placed in a wood-cheesecloth cage 9 by 12 feet in area and 6 feet tall. Fifty alfalfa plants of the F3 generation aphid-resistant stock were growing in the cage. The plants were judged to be in about one-fourth bloom at the time. Only an occasional flower had tripped when the bees were introduced. Between July 16 and 31, temperatures ranging from 78 to 120° F. were observed at the top of the alfalfa within the cage. At the same time out-of-door temperatures in an instrument shelter were from 14 to 21° lower. Under such conditions and concerning this strain of alfalfa, the following statements can be made: "A very high percentage of the flowers were tripped by the bees. Counts of racemes on which the flowers were all wilting, indicating that they had reached an advanced stage of maturity, showed that 98.2 percent of those remaining on the racemes were tripped. However, of the total flowers on the racemes counted to date, 40.8 percent had fallen off and, while it appears that most of them had been tripped, this point is uncertain. Repeated observation on different days and at different temperatures of 70 bee visits to different flowers showed that an average of 6.7 percent of the flowers were tripped. The estimated total mentioned above indicates that the percentage accumulates probably as a result of repeated visits and stage of maturity of the flowers. The role of temperature, except in influencing the development of the flowers, cannot be definitely stated, owing in part to the limited number of flowers in the cage. At the higher temperatures, however, the flowers appear to trip more easily. On the other hand, the bees seemed to work the flowers harder at lower temperatures. Behavior of the individual bee is an important factor. Some were observed to approach the flower repeatedly from the side, but others alighted on the face of the flower and inserted the proboscis to the base of the staminal column. Flowers were most often tripped by the latter type of visit, although at high temperatures a flower was occasionally tripped by the leg of a bee working to the side."

Further studies on hessian fly resistance in wheat hybrids.--W. B. Cartwright, Sacramento, reports as follows: "In cooperation with the Bureau of Plant Industry, a cross between Dawson and Club wheats has been tested under field conditions in California. On a factorial basis, a tentative interpretation of the genetic data from 135 F_3 rows of the Dawson and Club is that two factors and a 15-to-1 ratio are involved in the cross. This is similar to results obtained with the Dawson and Poso cross. The data indicate complete susceptibility to be recessive. Homozygous resistant lines from the Dawson, Poso, and Club hybrids have been obtained in reseedings and field tests in 1935. Two back crosses have been made to the resistant lines."

JAPANESE AND ASIATIC BEETLE INVESTIGATIONS

Japanese beetle situation in July.--Henry Fox, Moorestown, N. J., reporting on the Japanese beetle situation, states that the feature of most general interest in the infestation of the current year is its marked severity, as compared with that of a year ago. Extensive tracts of major infestation have developed in northern Delaware, in southeastern Pennsylvania, and in the southwestern, north-central, and northeastern parts of New Jersey. Noteworthy are isolated instances of remarkably heavy infestation which have appeared at such places as the Berkshire Country Club near Reading, Pa., and in the residential section of Cape May, N. J., both of which are separated by many miles from the periphery of the general area of heavy infestation.

Japanese beetles a nuisance at bathing beaches.--Mr. Fox reports that a very noticeable cause of public complaint against the Japanese beetle this season has been the abundance of beetles washed up on the shores of bathing beaches during the latter half of July. This situation has been especially annoying along the New Jersey beaches, from the Atlantic Highlands and Sea Bright down to well below Manasquan. Countless masses of beetles were apparently blown out onto the water and then washed back onto the beaches, causing a great deal of annoyance to bathers, as a result of the beetles getting in their mouths, noses, and under their bathing suits. The same situation has also occurred to somewhat less extent along the lower New Jersey beaches from Atlantic City to Cape May, while along those portions of the Delaware River flowing through the heavily infested areas, large quantities of beetles floating in the water have been observed by passengers on ferry boats and pleasure craft of all kinds.

The loss of derris from foliage in the field.--In tests conducted by R. D. Chisholm, Moorestown, samples of sprayed foliage were taken from the blocks of trees in the orchards sprayed with different derris sprays for the protection of early ripening peaches and apples. Samples were taken immediately after spraying and at intervals of 3 and 6 days. After the third application additional samples were taken at intervals of 9, 12, 14, and 18 days.

Three applications of the sprays have been made. Spray combinations used were: II (3 lbs. derris, 1 pt. fish oil, 100 gals. water); III (3 lbs. derris, 3 lbs. rosin residue emulsion, 100 gals. water); IV (3 lbs. derris, 3 lbs. rosin residue emulsion, 10 lbs. magnesium silicate, 100 gals. water). From these determinations, it was found that combination II deposited the least derris, while combination IV deposited the greatest amount. Combination IV in most instances also showed the highest relative amount of rotenone on the leaves, as compared with combination II.

Treatment of evergreen and deciduous nursery stock.--In tests conducted by W. E. Fleming, F. E. Baker, and L. Koblitsky, Moorestown, to determine the absorption of arsenic by nursery plants growing in treated plots, needles from *Picea alba*, *Picea excelsa*, *Picea pungens*, *Pinus mughus*, *Pinus nigra*, *Pinus strobus*, *Pinus sylvestris*, and *Pseudotsuga douglasii*, grown in the experimental plots at the laboratory, were analyzed for arsenic. The following table shows the arsenic content of the conifer needles. The figures in the body of the table are parts of As_2O_3 per million.

Conifer	Lead arsenate dosage per acre		
	1,000	1,500	2,000
	Pounds	Pounds	Pounds
Picea alba	0.625	1.000	1.75
Picea excelsa	.350	.475	1.05
Picea pungens	---	.875	1.62
Pinus mughus	.150	.310	.81
Pinus nigra	.150	1.250	1.40
Pinus strobus	.125	.475	.62
Pinus sylvestris	.150	.300	.40
Pseudotsuga douglasii	72.500	77.500	77.50

No injury was apparent in the above conifers. An examination of the beds planted in May with evergreen seeds, to determine the effect of lead arsenate on the growth of the seedlings, showed that many of the plants in the treated beds were retarded or showed injury. It is apparent from these results that lead arsenate cannot be applied to seed beds for growing evergreen seedlings of these types without causing severe injury to the plants.

Parasitization of Japanese beetles by *Tiphia vernalis*.--During the latter part of June observations were made by T. R. Gardner at the Rushland, Pa., colony of *T. vernalis* Roh., liberated in 1931. This colony is located in a low, partially shaded pasture along a stream. The parasite was present in the field and in the shaded areas grubs were still abundant, although in the open area most of the host population had changed to the prepupal, pupal, and adult stages. A square plot of 10,000 square feet in the partially shaded area was selected near the parasite feeding grounds and 200 1-square-foot diggings spaced equidistant each way representing 2 percent of the area were made. The total host population in the 200 diggings representing grubs, prepupae, pupae, a few newly formed beetles, and present-year parasite cocoons, each of which accounted for a host grub, was 1,046, giving an average of 5.2 per hole dug. Of these, parasite eggs were found on 251 grubs, parasite larvae in various stages of development on 428 grubs, and 23 of the grubs had been entirely consumed by the parasite, which was in the cocoon stage, giving an average of 67.1 percent parasitization for all holes dug. An examination of the parasitized grubs revealed the interesting fact that of the 679 grubs parasitized, 438 had from 1 to 10 destroyed egg shells on them, amounting to a total of 1,001 eggs. In addition to this, 14 of the 75 nonparasitized grubs and 5 of the 41 nonparasitized prepupae had from 1 to 5 destroyed egg shells on them, or a total of 46. This makes a grand total of 1,047 eggs that had been laid on grubs and destroyed, owing to reparasitization. Although the diggings in this plot show a very favorable rate of parasitization, it is thought that this is too high an average for the remainder of the pasture, as further samplings in the more open parts of the pasture showed a lower percentage. However, as the host development was so far advanced, it was impossible to make a detailed survey of the more open parts of the pasture on the same basis as on the original plot.

JAPANESE BEETLE CONTROL

Reorganization of Dutch elm disease personnel.--By June 30, 2,048 men meeting requirements had been added to the work-relief payroll by referral from the N. R. S. offices. Men accepted for this work and meeting a preliminary adaptability test were started in a brief course of scout training. Most of the men failing to qualify as scouts will be used as laborers on eradication. At the end of the month confirmed Dutch elm disease cases totaled 8,861, with 726 diseased trees still standing. Dead and dying trees tagged totaled 877,453, with 413,404 standing. Total personnel engaged in this work on June 30 numbered 2,506.

Japanese beetle trapping started in Southern States.--Setting of Japanese beetle traps was completed in 33 Virginia communities and 23 South Carolina towns and cities in June. With a few exceptions, all traps to be distributed this season in North Carolina and Maryland were in place. Thirty-eight localities in North Carolina and 23 Maryland communities have been selected for trapping this season. Trap setting in West Virginia was just getting under way. Traps were also in operation in East Saint Louis, Ill., and Detroit, Mich., by the end of the month.

Seasonal quarantine on fruits and vegetables effective June 15.--Organization of personnel and assembly of supplies and equipment for inspectio of farm products engaged district supervisors throughout the Japanese beetle regulated area. By the end of the month 79 temporarily employed farm-products inspectors had been added to take care of the requirements of this seasonal quarantine. Special platforms have been erected or rented in Fredericksburg and Exmore, Va., Washington, D. C., Baltimore, Cumberland, and Hagerstown, Md., Wilmington and Wyoming, Del., Philadelphia and Pittsburgh, Pa., Camden, N. J., and Syracuse and Menands, N. Y. The treating division has concluded tests to determine the most effective manner of fumigating refrigerator cars of potatoes and onions, using hydrocyanic acid and releasing the desired quantity of it in the form of a spray.

Nursery and greenhouse scouting started.--Surveys to determine the presence or absence of Japanese beetles in heretofore uninfested classified nurseries and greenhouses were started in Virginia, Maryland, and Delaware. Thirty-five per diem Federal scouts, and 17 State-paid scouts began their activities on June 17. Scouting will be organized in the more northern States to coincide with probable beetle emergence, which still appears to be approximately 2 weeks or 10 days later than in an average year.

Defoliations observed by district inspectors.--A heavy infestation of sawfly larvae has defoliated about half of a 15-acre block of red pine trees in Marlboro, Mass., on the property of the Metropolitan Water Commission. The trees are about 20 feet in height. The district inspector in Rhode Island reports the finding of an infestation of spiny elm caterpillars where a number of willow trees were completely defoliated. Birch and poplar trees were about 15 percent defoliated. Spiny elm caterpillars are reported as feeding on willow trees in the Barre, Vt., district. The district inspector in Essex, Mass, reported an area of about 1 acre in which all elm trees are from 75 to 90 percent defoliated by cankerworms.

Revised Japanese beetle quarantine regulations issued.--Under new regulations effective June 1, 1935, certification is required for fruits and vegetables of all kinds when moved via truck or refrigerator car from the District of Columbia, and those parts of Delaware, Maryland, New Jersey, Pennsylvania, and Virginia known to be continuously, and, at peak emergence of the insect, densely infested with the beetle. As a condition of certification of fruits and vegetables, other than onions and potatoes, moving via refrigerator car from the zone of flight, there are required inspection and loading in a manner to prevent infestation, in a refrigerator car with closed or adequately screened door and hatches, which car prior to loading has been determined by an inspector as thoroughly swept and cleaned by the common carrier in a manner to rid it of infestation. No change in regulated area was involved in this revision of the regulations.

Connecticut joint classified nurseries free from gypsy moth infestation.--During the first half of the month district inspectors in Connecticut scouted for gypsy moth larvae on deciduous stock in nurseries that are jointly classified for shipment under both Japanese beetle and gypsy moth quarantines. The presence of gypsy moth infestation on deciduous nursery growth can be readily detected at this season of the year when the gypsy moth larvae are feeding on the foliage. The surveys were with negative results.

Canadian and Maine corn borer quarantines.--On June 1, 1935, the Canadian quarantine on account of the European corn borer went into effect, and 2 days later the State of Maine quarantine for the same insect was effective. These quarantines regulate the shipment of vegetables, plants, and cut flowers of certain types from the New England States to the Dominion of Canada and the State of Maine. Inspectors in the Boston district have been called upon to make inspection and certification of native beets with tops, greenhouse-grown flowers of gladiolus, and entire plants of chrysanthemum in compliance with these quarantines.

FOREST INSECT INVESTIGATIONS

Aphid injury to ponderosa pine in Prescott Forest.--J. M. Miller, of the Berkeley, Calif., laboratory, reports that during the season of 1934 a stem-infesting form of aphid on the ponderosa pine of the Prescott National Forest was so abundant that forest officers raised the question of injury. In some areas the honeydew drip covered the ground and lower vegetation. The infestation persisted until late in the spring, when it gradually disappeared with the advent of the summer rainy season. Allen S. West was assigned to a study of this problem in May and was located at a Forest Service C. C. C. camp near Prescott, Ariz. The 1935 aphid infestation has been so light that difficulty was encountered in finding material for study.

Severe infestation of a pine tipmoth.--Mr. West reports that during the spring of 1935 there has been a severe attack on ponderosa pine tips by the southwestern species of the pine tipmoth (Rhyacionia neomexicana Dyar). It was found to be doing appreciable injury throughout the ponderosa pine of the Prescott National Forest. Older mature pines, however, suffered but little from this species.

Salvage logging of bark-beetle-infested trees.--Mr. Miller reports that the logging division of the Fruit Growers Supply Company, located at Susanville, Calif., has been carrying on an operation during the spring and summer of 1935 for the purpose of salvaging material from trees recently killed by the western pine beetle and other bark beetle species in the northeastern part of California. Trees selected for cutting are felled in the woods and logged by means of power equipment to the company's mill at Susanville, where the infested bark is destroyed. In order to determine the quantity and quality of merchantable material that can be cut from these beetle-killed trees, the Forest Service instituted a mill-scale study which was carried out at the Susanville mill from June 19 to 22. Logs comprising approximately one-half million board feet were run through the mill and the product tallied according to lumber grades. The Berkeley laboratory cooperated on this study by marking the trees on a sample area selected for the mill-scale study, recording the essential entomological data and marking the logs from each tree so that they could be identified at the mill.

Spray control of lodgepole needleminer undertaken on Yosemite Park.--K. A. Salman and G. S. Hensill, Berkeley, were engaged during July in laying out a program for a large experimental control project for determining the practicability of controlling Recurvaria milleri Busck by means of oil sprays. About 50 acres of infested lodgepole pine stand had been laid out in plots representing varying intensity of needleminer infestation. The National Park Service has established a stump C. C. C. camp in the experimental area to handle the labor of applying the sprays. Since the flight and attack of this species of needleminer occurs but once in 2 years, it is necessary that the experimental work be concentrated within a brief period of 6 weeks during the 1935 season. The next period of attack will not occur until the summer of 1937.

Pupation requirements for western pine beetle.--In May J. M. Whiteside, a graduate student of the University of California, completed a study of the temperature conditions necessary to the pupation of this bark beetle. This was a cooperative project carried on by the Berkeley laboratory and the Entomology Division of the University of California. Mr. Whiteside has tentatively demonstrated that, in the fall of the year, the physiological change from the last active fourth-instar larval stage to the prepupal condition acts as a barrier and prohibits the transformation to the pupal stage at temperatures near the zero of development (about 50° F.). Once the prepupal condition has actually been attained, the metamorphosis to the pupal and thence to the callow adult stage will continue uninterrupted at temperatures as low as 45°. This is 5° below the previously suggested zero of development. Indications are that this phenomenon will take place at temperatures as low as 41°. The fact that a higher temperature is required for pupation than for larval and post-pupation development serves to explain why the pupae of the western pine beetle are rarely found during the winter period. With approach of winter temperatures in the field, pupae found in the fall will transform to adults, which usually emerge. At the same time young larval stages will develop up to mature larvae; however, owing to the lack of temperatures high enough to permit pupation, mature larvae in the same broods will remain dormant until the following spring. The result is that by the end of the winter season the bulk of the broods are in the mature larval stage. Then, with the first warm weather of the spring period, almost all individuals of the broods transform to pupae at about the same time. Pupation is followed by rapid transformation to callow adults, followed in turn by a very heavy peak of emergence. It is obvious that this condition allows for a heavy concentration of new adults after emergence upon living trees during the period of rapid growth which occurs during the spring and early summer.

Survey of insect losses in Idaho and Montana.--J. C. Evenden, of the Coeur d'Alene, Idaho, laboratory, reports that a survey is being conducted to determine the annual loss of timber as a result of insect attack within the forests of Idaho and Montana. This is a part of the national timber survey by the Forest Service. The part of the survey relating to insect losses is under the direct supervision of the Coeur d'Alene laboratory.

Forest tent caterpillar and its parasites.--J. V. Schaffner, Jr., of the Melrose Highlands, Mass., laboratory, reports that severe outbreaks of the forest tent caterpillar (Malacosoma disstria Hbn.) occur in maple-sugar orchards in many localities in Vermont. The maple-sugar producers in that State are alarmed over the situation. Permanent sample plots will be laid out for the study of injury to sugar maple and to determine the effect of defoliation on sap flow and sugar content. The results on the issuance of moths and on the parasitization of cocoons of M. disstria collected in some heavy infestations of this insect are summed up in the following table. The issuance of both moths and parasites is practically complete.

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Locality	Cocoons collected	Moth issuance		Parasites		Parasitization
				Hymenoptera	Tachinidae	
	Number	Number	Percent	Number	Number	Percent
Pawlet, Vt----------	176	5	2.8	18	43	34.66
Bennington, Vt------	299	15	5.0	64	62	42.1
Randolph, Vt--------	132	27	20.5	25	43	51.5
West Rutland, Vt----	95	16	16.8	9	19	29.5

It will be noted from the above table that moth issuance was low. Disease undoubtedly caused considerable mortality. No records of parasite issuance from larvae and freshly formed pupae were obtained but it is safe to say that such parasites as Compsilura concinnata Meig. killed a certain percentage of the host. The records obtained indicate, however, the importance of insect parasites in the control of this forest defoliator.

Relation of gypsy moth abundance to forest composition.--W. L. Baker, Melrose Highlands, reports the results of a gypsy moth-forest type survey conducted in the town of Petersham, Mass., during the period of maximum defoliation by the insect in 1935. On analysis, the data showed a remarkable correlation between the proportion of favored trees in the stand and the degree of defoliation. In 70 percent of the stands four species of trees--gray birch, poplar, red oak, and white oak--either singly or in combination, constituted from 75 to 100 percent of the composition and in 95 percent of the cases they constituted over 50 percent. The remaining 5 percent of the defoliated areas were in alder swamps, alder being a very favored food plant. In not a single instance did food plants known to be unfavored constitute as much as 50 percent of the composition.

Increased solubility of spray materials due to leaf activity.--S. F. Potts, Melrose Highlands, reports: "Some experiments were conducted on certain phases of the foliage-injury problem which needed further corroboration before the data are published. The results show: (1) That plant juices and dissolved solids diffuse into dew, fog, and rain water deposited on the leaves; that a continuous supply of plant acid sets up a buffered condition; and that this buffer action is the chief cause of the breaking down of arsenicals and bordeaux mixture on the plant. The solubility of lead arsenate was about 20 times as great on the plant as in distilled water. (2) That 'dirt' and CO_2 (from the air and from leaf respiration) are dissolved into the dew from the leaf surface, but these are not the chief factors concerned in the breaking down of most spray residues, although CO_2 is an important factor in the decomposition of calcium arsenate. (3) When a solution of copper or arsenic was in contact with one surface of the leaf, and distilled water in contact with the other surface, approximately 5 percent of the arsenic or copper was recovered in the distilled water in 24 hours, having passed through both leaf membranes. The diffusion was more rapid through the lower surface than through the upper surface."

Lead arsenate spray on wet foliage.--Mr. Potts also reports: "Preliminary inspection of the data on the deposit and adherence in plots sprayed with hand and power machines using lead arsenate and fish oil when the leaves were wet, indicates that it is practical to spray when the foliage is wet, provided a heavy rain does not occur immediately after treatment (before the foliage dries). In dry plots excess spray decreases the deposit; in wet foliage plots excess spray increases deposit by replacing leaf water with spray."

Parasites of pine shoot moth.--P. B. Dowden and P. A. Berry, Melrose Highlands, report as follows on the pine shoot moth parasite material received this year and the number of parasites liberated: "Nine shipments of pine shoot moth parasite material have been received from W. F. Sellers, Oberpullendorf, Austria, this season. Emergence of parasites has been disappointing, owing to very heavy secondary parasitization. The species received were as follows: Lypha dubia Fall., Actia nudibasis Stein., Copidosoma geniculatum (Dalm.) Mayr, Orgilus obscurator Nees, Cremastus interruptor Grav., Pimpla sp., Ephialtes examinator Fab., and Tetrastichus turionum Hartig. Several colonies of parasites have been liberated from the Melrose Highlands laboratory, and the Dominion of Canada parasite laboratory at Belleville, Ontario, has cooperated by sending several shipments of parasites for liberation at Niagara Falls, N. Y. Liberations from the Melrose Highlands laboratory have been completed, but further liberations will be made at Niagara Falls. Liberations of Canadian material at Niagara Falls were made by P. A. Berry, Melrose Highlands, and W. E. Smith, of the New York State Department of Conservation. Mr. Berry left Melrose on July 21 returning July 31."

Parasites of Rhyacionia.--Liberations of Tetrastichus turionum consisted of adults that issued from material received from Austria in 1934. Mr. Berry has done some experimenting with methods of rearing the species and has found that by isolating fresh host pupae, and wrapping them in cotton, good results can be obtained. This work is slow, but large-scale rearing of the parasite could be accomplished if large collections of host material were made early in the season.

Parasite of willow-leaf beetle.--Mr. Dowden reports as follows on Schizonotus sieboldi Ratz., a pupal parasite of Plagiodera versicolora Laich: "Weekly collections of 100 fresh pupae have been made at Belmont, Milton, and Saugus, Mass. Laboratory rearing indicates that the parasite may pass through three distinct broods in a season, but that each brood overlaps the others. For instance, about 15 days are required for the parasite to develop from egg to adult, but adults of the first brood may lay eggs over at least 26 days. A reproductive capacity experiment using 15 females has been conducted with good results. One female (still ovipositing) has laid 283 eggs."

Dutch elm disease vectors.--W. D. Buchanan, of the Morristown, N. J., laboratory, reports that in his experiments with Saperda tridentata Oliv. as a vector of the Dutch elm disease, the fungus was obtained from 2 of 63 adults which, after they emerged from disease-free logs, were allowed to feed on a diseased tree, then on a disease-free tree before being referred to the Bureau of Plant Industry for culturing. C. H. Hoffman, of the same laboratory, has been studying the biology of this common elm borer and states that the female usually chews out a hole in the bark for the reception of the ovipositor, after which she reverses her body and deposits an egg in the puncture. Eggs may be thus inserted between the outer and inner bark or deep in the inner bark. Sometimes, however, the egg is tucked directly beneath flakes of the outer bark. In articles published on the species it has usually been stated that the eggs are laid on the bark.

PLANT DISEASE CONTROL

Scouting for white pine blister rust in California.--On July 9 five regular members of the California blister rust staff established a camp near Mt. Shasta, in northern California, for the purpose of systematically examining Ribes bushes and sugar pines to determine whether there are blister rust infections in that vicinity. The nearest known pine infected with blister rust lies about 150 miles to the north and the closest pinyon pines are located about an equal distance to the southeast. Both white and sugar pine trees occur in the immediate vicinity of the 1934 infections.

Blister rust control on the Allegheny National Forest.--Blister rust control has been established and is being maintained on the Allegheny National Forest in all areas containing white pine of sufficient value to justify protection measures. During May and June 1935 necessary control work was performed by 40 men from two C. C. C. camps, a total of 234,427 currant and gooseberry bushes being eradicated from 1,431 acres. The application of control measures on this forest since 1929 has resulted in protecting the white pines from blister rust infection. This satisfactory condition contrasts sharply with the rapid increase of pine infection in many unprotected areas in Pennsylvania.

Emergency work begins on blister rust control project.--Blister rust control work under the Emergency Relief Program is now getting under way, 454 persons having begun work on this project up to July 31. Of these, 413 were from relief rolls and 41 were nonrelief workers.

Losses from black stem rust.--Losses from black stem rust occurring this season in the spring wheat belt are largely limited in geographical extent, being most severe in western Minnesota and in the eastern parts of North Dakota and South Dakota. These losses are following similar damage to the winter wheat crop of eastern Kansas and eastern Nebraska. A considerable percentage of the injury attributed to stem rust this spring has been due to dry, hot weather the last of July. Shriveling of the kernels was noted on experimental rust control plots, as well as on rusted grain, although of course to a less extent.

Progress in barberry eradication.--In Michigan more than 36,000 barberry bushes were eradicated on 483 properties during the period from March 25 to July 31, according to F. B. Powers, in charge of barberry eradication in Michigan. Over 6,000 bushes were eradicated on 171 properties in three counties during that period. Fifty-nine of the total number of properties cleared were reported by school children and members of children's organizations, as a result of informational work conducted last winter.

Barberry eradication work in Illinois.--The P. W. A. program in barberry eradication conducted in Illinois during the period August 23, 1933, to June 30, 1935, resulted in a survey of 5,988 square miles. More than 40,000 barberry bushes were destroyed. The Works Progress Administration in barberry eradication was begun in Illinois the first week in August in six counties.

General statement on barberry eradication.--On August 13, 790 persons from relief rolls and 103 nonrelief workers had been given employment throughout the barberry-eradication area. W. P. A. work is getting under way in Pennsylvania, Virginia, and West Virginia. Some seasonal eradication was carried on in Virginia last year, but this year's work is the first in Pennsylvania and West Virginia. State leaders have recently been assigned and organization is getting under way.

COTTON INSECT INVESTIGATIONS

Thurberia eradication with reference to Thurberia weevil infestation in domestic cotton.--T. P. Cassidy, Tucson, Ariz., reports that at Fresnal, Ariz., cotton has been planted in an isolated area in proximity to Thurberia plants for several years and the maximum boll infestation by Thurberia weevils each year from 1930 to 1934 was 33.8, 31.0, 44.0, 39.8, and 17.7 percent. Beginning in June 1935, all Thurberia plants growing within a mile of this cotton are being destroyed to determine the effect this will have in reducing the weevil infestation in the cotton next year.

Notes on the cotton flea hopper.--K. P. Ewing and R. L. McGarr, Presidio, Tex., report: "From approximately the same numbers of plants installed each year, the emergence of cotton flea hoppers between February 1 and June 30 was 96,192 in 1933, 44,110 in 1934, and 46,689 in 1935. The percentage of hoppers emerging from croton in 1933 was 98.9 percent; in 1934, 99.6 percent; and in 1935, 99.8 percent. On 12 standard flight screens, 5,321 hoppers were collected in April, May, June, and July 1935, as compared to 10,967 in 1934 and 12,501 in 1933. This season's collections from the different sides of the screens to August 1 were: West, 1,934; east, 1,730; south, 950; north, 707. The prevailing wind direction was southeast. This indicates that the migration of the flea hoppers collected on the screens did not follow the prevailing wind direction. The wind did not blow from the west for a single hour during May and June. Two sets of screens have been used this season to obtain information as to the relative abundance of flea hoppers at different altitudes. Two standard-size screens, 3 by 5 feet, are exposed at each elevation. Before August 1 a total of 1,201 flea hoppers were collected at the four elevations as follows: 3 to 6 ft., 416; 9 to 12 ft., 216; 15 to 18 ft., 201; 21 to 24 ft., 323. It is of interest to note the large number of hoppers collected at the highest elevation. * * * Picking has been started but is not completed on the experimental plats and field experiments on dusting for flea hopper control. In one series the first picking yielded 62 pounds of seed cotton on the check plat and 834 pounds on the plat dusted with sulphur and 10 percent paris green. In the first picking of one of the field tests, 82 pounds of seed cotton per acre were picked from a 7-acre check field and 213 pounds per acre from 40 acres dusted with sulphur."

Microbracon kirkpatricki Wilk. in relation to the boll weevil.--A shipment of M. kirkpatricki, one of the pink bollworm parasites recently brought from Egypt to the Presidio laboratory, was received at Tallulah, La., on July 15. Although the species had probably never before come in contact with the boll weevil, it readily attacked it. In fact, in the brief studies made in the insectary this African species of Microbracon seemed to attack the weevil more readily than did M. mellitor Say, the most important native parasite of the boll weevil in this country. Although somewhat smaller than M. mellitor, M. kirkpatricki finds the weevil larvae just as easily, even in squares as long as 5/8 inch. M. kirkpatricki, unlike M. mellitor, often lays more than 1 egg on its host. In one instance in which 6 eggs were laid on the same weevil larva, all hatched and 5 of the developing larvae spun cocoons after destroying the weevil larva and the sixth parasitic larva as well, and 3 adult males developed. From the 47 adult parasites (31 males and 16 females) that were reared from the egg stage before August 2, data were obtained for the following comparisons:

Period	M. mellitor	M. kirkpatricki
Average oviposition----------------	10 minutes (3-90)	3-5 minutes
Egg--------------------------------	21-23 hours	18-20 hours
Larval feeding---------------------	3 days	3 days
Cocoon-----------------------------	9 days	5 days
Cycle, oviposition to emergence----	12-15 days	9 days

With its shorter life cycle, M. kirkpatricki would have, theoretically, more generations per year than M. mellitor.

Cotton bollworm serious in Texas.--R. W. Moreland, College Station, Tex., reports that examinations of 2,700 plants during the week ended August 10 showed an average of 105 eggs per 100 terminal buds, as compared to 25 the previous week and 1 egg per 100 buds during the same period in 1934. Examination of 3,274 forms in the check plats showed that 35.4 percent were injured, whereas 19.4 percent of the 2,054 forms examined in the plats dusted with calcium arsenate were injured. Severe damage by the bollworm has also been reported from other sections of Texas.

Cotton leaf worm control.--K. P. Ewing, Port Lavaca, Tex., reports that he has never before observed such a prolonged fight against the cotton leaf worm as has been waged in Calhoun County, Tex., this year. Every acre of cotton in the county has been poisoned from three to six times for leaf worm control. Lead arsenate as a spray has been most generally used; calcium arsenate as a dust comes next; and straight paris green is third. The proportion of acres dusted with the latter has been very small. Excellent results have been obtained. The control of leaf worms at the time of reporting (August 10) had been approximately 100 percent.

Lead arsenate vs. calcium arsenate in relation to cotton aphid.--Mr. Ewing also reports on August 10 that the cotton aphid is noticeably on the increase, especially in fields dusted with calcium arsenate. The loss in one field of 175 acres is already considerable. Nearly all the leaves have fallen from the cotton plants and many small bolls of the top crop are now falling. This field was dusted four times with calcium arsenate. A nearby field sprayed with lead arsenate shows no appreciable aphid infestation.

PINK BOLLWORM AND THURBERIA WEEVIL CONTROL

Trap-plot cotton in the Big Bend area of Texas.--The trap-plot cotton in the Big Bend area of Texas was continued during July. By the first of August the field cotton in the Presidio section was so far advanced and contained such a large number of mature green bolls, that it was not considered practical to continue the trap plots in that section; besides very few worms were being caught. In the Castolon section the plots will be continued for some time yet. For the season 221,105 blooms were inspected in the Presidio section, from which 7,574 worms were taken, whereas last season 245,267 blooms were inspected and 5,995 worms collected. Last year these plots contained approximately 400 plants each, but this year the plots are about 1/4 acre in size. The additional worms collected this season may be due to a slight increase of the infestation, or it is possible that the larger traps used this season were more attractive to moths. In the Castolon section 327,985 blooms have been inspected this season and 14,077 worms collected, as compared with 519,610 blooms and 3,481 worms last season. The plots at Castolon were the same size as last year, consequently the increase in worms is attributed to seasonal fluctuation. It is of interest to note that from the 99,635 blooms collected in the fields adjacent to the Castolon plots, only 357 worms have been collected. This indicates that the plot cotton is still much more attractive to moths.

Pink bollworm control in Florida.--During July the wild cotton was removed from the area along the west coast that had not previously been recleaned for a second time this season. Most of the seedling plants were exceptionally small, but along the upper part of the west coast, which was gone over last November and December, some fruit was found to have matured. Only a few bolls had opened, and indications were that none had fallen to the ground. Boca Grande Island, about 15 miles west of Key West, was also recleaned. This island was originally cleaned in May 1934, and by the time it was recleaned during the following winter practically every seedling plant had matured fruit, some of which had been shed. The work done in August covered 244 acres, from which 80 mature, 94,158 seedling, and 59 sprout plants were removed. All of the mature plants came from a new colony located in Charlotte County.

TRUCK CROP AND GARDEN INSECT INVESTIGATIONS

Insecticide tests against the pea aphid.--J. E. Dudley, Jr., Madison, Wis., reports that best results were obtained with a spray containing derris root powder in water, plus a commercial preparation of sulphated phenyl phenol (1-600) which functioned as a spreader and sticker. The rotenone content in the tested spray suspensions ranged from approximately 0.0044 to 0.0133 percent. Fairly satisfactory results were obtained with spray mixture consisting of nicotine sulphate (1-800) containing 40 percent nicotine, and potassium oleate soap (1-90), as well as with a dust mixture containing nicotine sulphate, magnesium carbonate, and hydrated lime. With the spray containing ground derris root and sulphated phenyl phenol, a maximum of 96 percent of the aphids were killed and the yield of shelled peas from the treated plots ranged from approximately 2 to 3 times greater than in the comparable untreated plots, as the result of one application of the spray.

Evidence that sweetpotato weevil adults can fly.--K. L. Cockerham and O. T. Deen, of the Biloxi, Miss., laboratory, report that three adults of the sweetpotato weevil were caught at light traps operated in the Biloxi district during 3 weeks in June. One specimen was caught at a distance of 172½ feet from the nearest infested field. These records constitute the first definite evidence that sweetpotato weevils are able to fly distances that may have a significant effect on their dispersion.

Effect of temperature and wind velocity on flight of beet leafhopper.--In analyzing the results of detailed flight studies of the beet leafhopper in the Coalinga district of the San Joaquin Valley, Calif., late in April and early in May, J. C. Chamberlin and F. R. Lawson, of the Modesto, Calif., laboratory, report (1) that flight activity of beet leafhopper adults begins as early in the morning as the temperature attains a level of 65 to 67° F., continues all day, reaching maximum activity about sunset, and ceases when the temperature falls below 65 to 67°; (2) that flight of the leafhoppers is greatest on days when the maximum temperature exceeds 80° and does not fall below 65° until after 6 p.m., provided the minimum relative humidity is less than 10 percent; (3) that when conditions are favorable, flight will occur regardless of wind direction or velocity, up to 15-20 miles per hour; and (4) that, with the exception of winds of very low velocity, the flight is in the direction of the prevailing wind.

Devil's shoestrings root compared with derris for control of imported cabbage worm.--C. B. Wisecup and J. P. Vinzant, of the Sanford, Fla., laboratory, report that in a recent series of laboratory tests with a precision duster, undiluted and finely ground root of devil's shoestrings (Cracca virginiana L.) proved as toxic as derris dusts of ordinary commercial strengths to quarter-grown and half-grown larvae of the imported cabbage worm. Against the quarter-grown larvae, the samples of Cracca containing approximately from 0.05 to 0.1 percent rotenone were as effective as a derris dust containing 0.5 percent rotenone and were more effective than a derris dust containing 0.1 percent rotenone. Against half-grown larvae the samples of Cracca containing from 0.05 to 0.1 percent rotenone were definitely inferior to a derris dust containing 0.5 percent rotenone. When directed against the half-grown larvae, undiluted samples of Cracca having rotenone contents ranging from 0.17 to 0.42 percent gave percentages of kill equally as high as those from derris dust containing 0.5 percent rotenone. In a special series of tests with a sample of Cracca that did not contain any detectable trace of rotenone but which did contain 8.1 percent total extractives, the percentage of kill against half-grown and quarter-grown larvae of A. rapae was approximately equal to that obtained with the finely ground clay commonly used for diluting dust mixtures, indicating that the presence of rotenone in Cracca is essential in order to obtain effective insecticidal action.

Control of Gulf wireworm by crop rotation.--K. L. Cockerham and O. T. Deen, of the Biloxi, Miss., laboratory, found that in field studies conducted on the Gulf wireworm (Heteroderes laurentii Guer.) in Alabama and Mississippi, during the spring of 1935, this pest was most numerous and caused most damage in fields where potatoes were grown for a succession of years than in fields where acceptable crop rotations were practiced. The wireworm population was lowest and the damage least to potato tubers where this crop followed the breaking up of sod land.

Sulphur as a deterrent in preventing oviposition by sugar beet wireworm.--R. S. Lehman, of the Walla Walla, Wash., laboratory, reports that sulphur has appreciable merit as a deterrent to oviposition by the sugar beet wireworm (Limonius californicus Mann.). When sulphur was applied to the soil surface of a series of plots at the rates of 100, 150, 200, 300, and 400 pounds per acre, respectively, the number of eggs deposited by the adults of L. californicus was materially reduced on the treated plots, as compared to adjacent and similar untreated plots.

Spring host plants of beet leafhopper in California.--F. R. Lawson and H. E. Wallace, of the Modesto, Calif., laboratory, report that host-plant studies conducted in the foothills of the San Joaquin Valley of California, from Tracy to Coalinga, revealed that the desert plantain (Plantago erecta Morris) was the most important spring host plant of the beet leafhopper in this district during the spring of 1935. These studies also revealed that eggs were deposited in nearly all of the susceptible species of host plants present on breeding areas where the growth conditions were favorable, and that nymphs emerged therefrom. It appeared from these studies that the relative degree of susceptibility of the several species of plants under observation varies from year to year in accordance with the physiological condition of the plants during the period of egg deposition and that favorable growth conditions for the host plant were of primary importance, the selection of a particular plant species for egg deposition being a secondary consideration. Also, it was shown that the degree of virulence of the curly-top virus carried by the leafhoppers varied more with the species of host plants involved than with the proximity of these plants to beet fields.

INSECTS AFFECTING MAN AND ANIMALS

The screw worm situation in Texas and the Southeast.--Screw worms continue to cause considerable losses in range animals in the Edwards Plateau and other livestock-raising areas of southwestern Texas. Ranchmen in Menard, Schleicher, Concho, McCulloch, Kerr, and Kimble Counties report from 10 to 30 percent of their animals infested. In the Big Bend area the recent rains, which have placed the ranges in better condition than they have been in the past 5 years, have also produced favorable conditions for the breeding of screw worm flies; consequently there is a rather severe and unusual outbreak of this pest. In the seven Southeastern States, including a portion of southeastern Texas, where the Bureau is undertaking an extensive control campaign, screw worm flies have shown increased activity, except in Mississippi and Florida. Numerous local showers have maintained ideal conditions for fly breeding and this is probably the factor responsible for the increase in numbers of infestations. The conditions thus far are by no means serious, but additional supplies of benzol and pine tar oil are being rushed to these States to take care of any emergency that may arise. Approximately 25,000 gallons of each of these medicines has already been distributed to the States concerned. In Georgia 425 pens and chutes for handling infested livestock have been constructed.

Mosquito outbreak follows floods in New York.--The recent floods occurring in southern and central New York have brought about ideal conditions for the production of enormous numbers of the floodwater mosquitoes (*Aedes hirsuteron* Theo.) and the common swamp species (*Aedes vexans* Meig.). Flooded cellars, catch basins, and numerous small stagnant pools have contributed to increasing the numbers of house mosquitoes.

Effect of carcass burning for control of primary screw worm fly.--Recent investigations conducted by E. W. Laake and E. F. Knipling, Valdosta, Ga., on the effect of carcass burning to destroy larvae of *Cochliomyia americana* Cushing and Patton, indicate that most of the larvae of this species infesting an animal at the time of its death will migrate from the carcass within 48 hours after the animal dies. In view of these findings, it appears necessary that, in order to destroy the maggots, the carcass should be burned within 2 days after the animal dies.

Flight range of two species of mosquitoes.--H. H. Stage, of the Portland, Oreg., laboratory, reports that on June 24 at Lotus Island a large number of freshly emerged mosquitoes of *Aedes aldrichi* Dyar and Knab and *Aedes vexans* Meig. were sprayed with a 1.5 percent solution of methylene blue for the purpose of determining their longevity and flight range. Up to July 31, 4,705 adults have been captured and examined for stain and positive traces were found on adults taken from 5 widely scattered localities. Dispersion took place in all directions but the most distant point at which stained adults were taken was 5 miles from the point of origin.

FOREIGN PLANT QUARANTINES

Entomological interceptions of interest.--Living and dead larvae of the Mediterranean fruit fly (*Ceratitis capitata* Wied.) were intercepted at Boston on May 27 in a lot of 800 oranges in ship's stores from Spain. Of 24 oranges, larvae were found in 10. Living larvae of *Baris laticollis* Mrsh. were taken at New York on May 9 and at Philadelphia on May 4 in turnip roots in ships' stores from Algeria. This weevil has arrived previously in turnips from England, France, and Portugal, and in rutabaga (*Brassica campestris*) from France. Living adults of *Euspermophagus gossypii* (Chev.) were found at Washington, D. C., on September 25, 1924, with seeds of *Ipomoea albivenia* in the mail from Mozambique, Africa. J. C. Bridwell states that these morning-glory seeds have often been mistaken for cotton seeds, even by the describer of this bruchid. An adult of *Faula pilatei* Har. arrived at Mobile, Ala., on April 18 on banana debris in cargo from Guatemala. A living adult of the Tahitian coconut weevil (*Diocalandra taitensis* Guer.) was taken at Honolulu, T. H., on March 18 on a coconut in baggage from American Samoa. A living adult of Xyleborus torquatus Eichh. was intercepted at Nogales, Ariz., on April 28 in a tomato fruit in cargo from Culiacan, Sinaloa, Mexico. It was feeding in its own tunnel in the core at the center of the fruit. Living specimens of the gladiolus thrips (Taeniothrips gladioli M. & S.) arrived at San Francisco on May 4 on gladiolus flowers in baggage from Hawaii. Five living adults of Myelois decolor Zell. were taken at New York on May 8 with algarroba(Hymenaea courbaril) pods in baggage from Jamaica. Taeniothrips picipes (Zett.) was intercepted at Philadelphia on September 20, 1934, on heather in the mail from Scotland. This European thrips feeds on a large number of plants. A living specimen of Ischnodemus sallei Sign. arrived at Galveston, Tex., on May 20 on banana debris in cargo from Honduras. Living larvae and dead adults of the pink bollworm (Pectinophora gossypiella Saund.) were intercepted at New Orleans on May 21 in cottonseed in baggage from Brazil. A larva of the Asiatic rice borer (Chilo simplex Butler) was taken at New York on May 16 in a rice-straw mat in baggage from Syria. This represents the first record in our files of this pyralid being intercepted from Syria.

FOREIGN PLANT QUARANTINES

Pathological interceptions of interest.--Cercospora xanthoxyli Cke. was intercepted on Zanthoxylum sp. from Cuba, first interception, on July 5 at Philadelphia; Colletotrichum gloeosporioides Penz. (?) with setae of C. nigrum E. & H. but spores more like those of C. gloeosporioides Penz. or Gloeosporium piperatum E. & E. was intercepted on June 17 at New Orleans in peppers from Panama; Colletotrichum graminicolum (Ces.) Wils., first interception from Italy, was made on July 11 on wheat at New York; the first interception of Graphiola borassi (Syd.) Butl. was made on July 15 at Philadelphia on Borassus sp. from India; Peronospora parasitica (Pers.) D. By., first interception from Japan, was made at Baltimore on July 23 on cabbage; Phyllachora sp. was intercepted at New York during May, June, and July on Axonopus sp., Paspalum sp., and Panicum sp. from Brazil, on Distichlis spicata and Bromus catharticus from Argentina, and on Paspalum sp. from Mexico; Phyllachora trifolii (Pers.) Fckl., first interception from Ireland, was made at New York on March 13 on shamrock; Pseudopeziza medicaginis (Lib.) Sacc. was intercepted at New York on March 13 on shamrock from Ireland and at El Paso on July 17 on alfalfa from Mexico, first interceptions from these countries; Puccinia sp. intercepted on Andropogon sp. (?) from Mexico on July 1 at Seattle does not check with any described species; Vermicularia sp., first interception of genus on Eragrostis sp. from Mexico, was taken at New York on June 20.

Shoes cover more than feet.--"Heavy shoes only", said the passenger from Puerto Rico in presenting a carefully wrapped box to the New York inspector. Each of four shoes carefully wrapped in tissue was found to contain 3 mangoes, and a box of "dulce" contained 13 more.

A new-style nosegay.--A nosegay in the lapel of a coat carried on the arm of a woman returning from England attracted the attention of one of the New York plant quarantine inspectors. Upon investigation, it was discovered that two plants in soil were concealed in the sleeves of the coat. One of the plants, a Pittosporum, was found to be infested with larvae of a tortricid and of Myzus veronicae Del G. It is of interest to note that the last-named insect was parasitized by a species of Aphidius.

DOMESTIC PLANT QUARANTINES

Phony peach disease in Maryland and Kentucky.--The first definite cases of the phony peach disease in the above States came to light in the recent survey of peach-growing areas in these States. In Maryland 2 infected trees were discovered in Washington County, and in Kentucky 2 were found in Henderson County and 1 in Webster County. This work is part of a general cooperative survey of States bordering on the north of the known infected area, for the purpose of finding and eradicating any such infections.

Growers provide more labor in phony peach orchards.--More labor in the cutting of limbs and digging out of trees infected with the phony peach disease has been furnished by peach growers in Georgia this summer than in previous seasons. Inspectors had been making a practice of sawing off limbs as infections were found, but experiments proved that in the aggregate this work retarded inspection and diagnosis. Growers were informed of the situation and nearly all responded willingly to the new requirement of removing their own infected trees. More calls for inspection were received than the force was able to meet.

Citrus canker discovered in Harris County, Tex.--Federal and State inspectors working cooperatively recently found citrus canker in the southern part of Harris County, Tex., bordering on the Galveston area, where the disease has been reported on several properties. Citrus trifoliata is scattered throughout the Harris County area in hedges or abandoned nursery stock, and it was on a hedge that the disease was found. Owners in this area are readily consenting to the destruction of such trees. Harris County is one of the 21 counties in Texas once known to be infected with the disease.

No citrus canker in lower Rio Grande Valley.--Continued inspection in the commercial citrus-growing area of the lower Rio Grande Valley has failed to disclose any citrus canker in this area.

Japanese beetles found in produce cars in Chicago.--On the recent finding of one live Japanese beetle in a car of produce arriving at Chicago from the infected area, inspectors of the transit inspection and Japanese beetle projects set up special tours of inspection of such shipments and during July a total of 7 beetles were found in 6 cars. Transportation agencies were required to clean the cars thoroughly and burn the refuse. During the month 111 cars were inspected.

Blueberries in air mail from Japanese beetle area.--A California State inspector recently reported a quart of fresh blueberries arriving by plane at Pasadena from Litchfield, Conn., without Japanese beetle inspection. The fruit was destroyed on order of the postmaster.

Transit inspection established at Cincinnati.--Owing to the heavy movement of plants and plant products from the Northeastern States through Cincinnati to points in important agricultural regions, a transit inspector is being stationed on a permanent basis in that city for the enforcement of Federal domestic quarantines. A new railway terminal was recently erected.

IDENTIFICATION AND CLASSIFICATION OF INSECTS

Second rearing record for species of Cuterebra.--Specimens reared on July 16, 1934, from a white-footed mouse, received from W. M. Bowdish, Demarest, N. J., through J. E. Shillinger, of the Biological Survey, have been placed by C. T. Greene as Cuterebra fontinella Clark. This is the second known authentic report of this insect from that host.

European cruciferous pest tentatively recognized in quarantine material.--The European species Ceutorhynchus contractus Marsh has been several times reported as injurious, in the larval stages, through mining in leaves of cauliflower, radish, and Brassica arvensis, and is said to occur throughout Europe. Larval specimens from France, found in radish leaves (in ship's stores) by port inspectors at New York City, have been placed tentatively by A. G. Boving as C. contractus.

Japanese flea beetle recognized.--One specimen of a flea beetle, found in rice straw from Japan at Seattle, Wash., by a port inspector, has been placed by H. S. Barber as the species Mantura clavareaui Hktgr. This insect previously has not been represented in the Washington reference collections.

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